PROJECT: TECHNOLOGY INSERTION 2003 (TI-03)

REQUEST FOR QUOTES – PHASE I 8/16/02

The Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) is seeking initial quotes for a uniform range of HPC configurations and associated maintenance against GSA Schedule 70 contracts to address the non-real time HPC requirements for its user base of scientists and engineers across the HPCMP Major Shared Resource Centers (MSRCs). Information obtained from these initial quotes will be used in conjunction with benchmark performance data obtained from responses to this Request for Quotes (RFQs) from potential offerors to determine solutions to address HPCMP user requirements. No awards will be made from responses to the initial RFQ. The responses serve only to provide information. On approximately 25 Oct 2002, a final RFQ for one or more specific system configurations across one or more specific MSRCs against existing GSA Schedule 70 contracts will be sought. General information is provided below to give offerors a better understanding of terms and conditions that may be required for systems and services acquired. The Government reserves the right to make no award from the final RFQ.

INFORMATION REQUIRED IN INITIAL QUOTES

Offerors are requested to provide detailed pricing and hardware/software configurations and maintenance for a range of balanced HPC systems that meet or exceed the DoD Standard Performance Requirement (SPR) as identified in the benchmarking instructions on the HPCMP website (http://hpcmo.hpc.mil). Pricing should include alternatives that include solutions providing from one to approximately four times the SPR for the offeror's solutions up to an approximate $20 million price point. The HPCMP expects to purchase about $40 million worth of systems and support infrastructure items for the four MSRCs. Systems deployed to ASC and ERDC MSRCs are anticipated to have total procurement costs in the $10–20 million price range, and systems deployed ARL and NAVO MSRCs are anticipated to have total procurement costs in the e $0–5 million price range.

Balanced HPC systems are considered to be those systems with the appropriate combinations of processors, memory, I/O, internal and networking communication, and on-line storage, permitting the system to sustain processing operations at high levels of system utilization for the DoD HPCMP workload characterized in the benchmarks. Balanced systems can generally be considered as those having features and configurations similar to the larger HPC systems currently installed at the MSRCs, with sufficient memory to run the Benchmark suite. Offerors should identify how features of the proposed systems contribute balance as a part of the response to this initial RFQ. Maintenance costs and all other costs to provide an operational system should be included. If a warranty is included, the duration, terms and conditions of the warranty should be stated. Additional maintenance and warranty terms and conditions are shown as Attachment 3.

The DoD HPCMP is seeking benchmark performance data provided in response to the above mentioned benchmarking instructions on the HPCMP web site for a set of runs which will be used as a part of the analysis process for a procurement to address the non-real time HPC requirements for its user base of scientists and engineers across the HPCMP MSRCs.

REQUIRED DATE FOR RESPONSES TO RFQ AND RECEIPT OF BENCHMARK DATA: All responses and benchmark data must be received by COB 27 Sep 2002 at the following address:

GSA/FTS
ATTN: John Mayes
4890 University Square, Suite 3F
Huntsville, AL 35816

Please provide 5 hardcopies and one electronic copy. The electronic copy shall be submitted via GSA's Automated Acquisition System, ITSS (it-solutions.gsa.gov).

GENERAL INFORMATION

1. Characterization of Requirements

a. A survey of users has identified FY 2003 non-real-time HPC user requirements totaling approximately 77 teraflops-years. The HPCMP is seeking additional HPC systems to more effectively address these requirements.

b. Our assessment of a particular platform's potential to satisfy DoD requirements will be in four categories: technical performance, cost/performance, usability, and confidence. Weighting among these categories is part of the evaluation process and is not available to offerors.

c. Technical performance will be determined from the results of the benchmark suite. When combined with price, price/performance is determined. The benchmark suite has two components, synthetics and applications. Synthetic benchmarks measure a machine's fundamental capabilities and hence illustrate potential performance enhancements or bottlenecks. The application benchmarks have been drawn from computational technology areas (CTAs) with high utilization. They represent important elements of the HPCMP workload. We encourage each offeror to provide a complete response to the benchmarking cases. The overall goal of TI-03 is to provide a program-wide capability that addresses the entirety of the HPCMP's requirements. This program-wide solution may well consist of several systems of varying architecture, each addressing portions of DoD's overall requirements. Thus, if offerors cannot provide a complete response to the benchmarking cases, they are still encouraged to submit results to as large a subset of these cases as possible.

d. Usability criteria will be concerned with issues related to ease of use and functionality for the end user as well as for MSRC environments. This includes but is not limited to the availability of key commercial software packages, system utilities, and system characteristics that facilitate integration, operation, maintenance and upgrades.

e. Confidence criteria will address, but not be limited to, issues of offeror stability, reputation, past performance, and maturity of the technology. To facilitate this process, offeror should address and respond to questions listed in Attachment 1 as part of their response to this RFQ.

f. Presentations will be conducted in the HPCMP Office with each offeror between 3 Sep and 6 Sep 02 in order to gather information to evaluate usability and confidence factors. Information requested and scheduling information is shown in Attachment 4. **In addition, system parameter information shown in Attachment 5 is to be emailed to john.mayes@gsa.gov and larryd@hpcmo.hpc.mil by COB 28 Aug 02.**

NON-GOVERNMENT ADVISORS. Offerors are advised that the following contractors will participate as non-Government advisors in the evaluation of proposals. These advisors will be authorized access to only those portions of the proposal data and discussion items that are necessary to enable them to provide specific advice on specialized matters or on particular problems. The non-Government advisors will not be allowed to participate as voting members or actually rate or rank offeror's proposals. Any objection to disclosure of information provided by a offeror to these non-Government advisors shall be provided in writing before the date set for receipt of proposals and shall include a detailed statement for the basis of the objection.

1. User Technology Associates
2. Instrumental, Inc.
3. Computer Sciences Corporation
4. High Performance Technologies, Inc.

2. Factors to consider in preparing quotes in response to the RFQs

a. The HPCMP will analyze the relative performance and price/performance of systems, along with usability and confidence information provided in response to the initial RFQ to determine the candidate systems to be acquired and deployed at multiple MSRCs. The HPCMP will issue final RFQs to some or all of the offerors responding to the initial RFQ based on this analysis.

b. The quote provided in response to the final RFQ should include the total life cycle costs for the proposed system(s). Assume a 42-month operational life for proposed systems. Due to budget constraints, the HPCMP has approximately one half of one percent of acquisition cost per month, over the 42-month life cycle, available to purchase maintenance. Offerors should seriously consider this when preparing their response to both the initial and final RFQ. Offeror quotes should be structured as a year 1 price and each successive year as an option. For each system proposed in the quote, provide pricing as follows:

Item	0–12mo	13–24mo	25–36mo	37–42mo
System	$W			
Maintenance (24x7)	$X	$Y	$Z	AA
Other Support*	$__	$__	$__	$__
Total	**$__**	**$__**	**$__**	**$__**

*Other support costs could be operating system and other software, system specific support equipment, unique personnel, and any other items needed to provide a balanced HPC system.

c. The benchmarks are structured to address a range of target configurations. Due to hardware availability constraints or other considerations, offerors may respond with estimates of performance provided such estimates are guaranteed on delivered hardware. In response to the final RFQ, selected offerors will be required to clearly explain how performance on the benchmarked configuration is extended to estimated performance of the configuration proposed. These performance projections must be expressed in terms of guaranteed benchmark performance on the delivered configuration. Again, the offeror should explain their projected efficiencies based on scalability and other factors. In response to the final RFQ, offerors will be required to guarantee benchmark performances on a "fully loaded" system. Options will be requested in the final RFQ for two times, and four times, the memory the offeror is offering as the minimum to meet benchmark suite requirements.

"Notice: The specific definition of a "fully loaded" system will included in the second round RFQ. For planning purposes we expect that the system(s) actually procured will typically run multiple applications such that ~ one-quarter of its size would be used for a single large test case. We plan to make corresponding adjustments to the number of test cases requested in the loaded system guarantee times to assure the guaranteed times accurately reflect performance in an actual HPC center operation."

d. Delivery of proposed systems is generally expected to occur 120 days after receipt of order (the Government's goal is to take delivery approximately 30 June 2003). If the system proposed in the final quote is not delivered on time, the Government's consideration will be four percent of the negotiated systems(s) purchase price per month (pro-rata to a maximum of 20%) until the system(s) is delivered.

e. The Government will be partnering with the contractors supporting the MSRCs throughout this process and those contactors will participate in the final integration. Pricing requested under this initial RFQ will be used to scope TI-03 purchasing options as described above. In the final RFQ, responses to any follow-up requests for quotations will be considered best and final pricing to the Government and will be used to make final purchasing decisions. However, all pricing will remain negotiable until the final purchase decision is made. The Government will choose the systems to be purchased and allocate procurement resources based on best and final negotiated prices.

f. For the final RFQ, the offeror is required to meet the performance guarantees at the completion of the required Effectiveness Level Testing (ELT) (see Section 2 of

Attachment 2) and capability testing. ELT shall commence within 90 days of delivery. If the guarantees are not met within 90 days of commencement of ELT, the Government may reject the system. Requirements for ELT and capability testing will be provided in the final RFQ.

g. The offeror is advised that a high level of system availability and a guaranteed minimum number of failures per month will be required. Generally, the Government is seeking a minimum guaranteed effectiveness level (EL) of at least 95% and a guaranteed minimum number of failures per month. These guarantees will be part of the evaluation criteria.

h. Attachments 2 and 3 to this RFQ are included to provide offerors a sense of acceptance, warranty, and maintenance requirements for the HPCMP. The processes discussed in these attachments may not reflect acceptance, warranty, and maintenance requirements of the final RFQ.

i. In addition to the prices quoted, describe and quantify any other innovative pricing.

j. The Government will require offeror benchmark results be made available to support future evaluations. The Government will require the offerors to allow the Government to share the results of the benchmarks with the national HPC community. As stated in the referenced benchmark rules, offerors are encouraged to offer benchmark performance information that highlights any particular strengths of their proposed systems.

k. General terms and conditions are as listed in the basic GSA Schedule 70 contracts. This document reflects a further refinement of the Government's requirements. Should a conflict in interpretation arise between this document and GSA Schedule 70 document, the order of priority is this document, and then the basic GSA Schedule 70 contract.

ATTACHMENTS

ATTACHMENT 1

The Confidence Team will be evaluating each offeror as described in paragraph 1.e. In support of performing this evaluation, the following information is requested. All information is required. It is most desirable that the information be provided via a written response to this RFQ. If necessary, it is allowable to provide a response to selected items during the upcoming offeror presentations described in paragraph 1.f. above. Should the latter be the selected approach, please indicate in response to this RFQ which items will be addressed via the alternate forum.

	Actual $/annum for Pervious 5 yrs (1997–2001)	Projected $/annum for Next 3 yrs (2002–2004)
Total Revenue	X	X
HPC Revenue	X	X
Total R&D	X	X
HPC R&D	X	X
Share of HPC market	X	X

Most recent Annual Report

Stock price profile – 5 calendar year historical highs and lows by quarters

Dunn & Bradstreet – most recent report

SEC Form 10-K

Concisely describe you company's business model and the role HPC plays in the model

State your strategic vision (Vision Statement)

Partnerships; i.e., joint business relationships with other HPC offerors

Concisely identify critical H/W & S/W suppliers, your dependency on them, and your processes in place for developing and maintaining 3rd party software development partnerships

Concisely identify your value added HPC capabilities

Provide reference information for 3 largest non-DoD scientific computing customers using your systems

Profile of the number of customers verses system size (# of CPUs) per offered system type

Concisely describe your philosophy with respect to making commitments to delivering future products

HPC Product Roadmap – history and future

Past 5 years, current year and 5 future years including but not limited to:

- Systems and Architectures
- Operating Systems
- Programming paradigms
- I/O interfaces (performance capabilities)
- Performance projection (FLOPS)

Identify deviations from scheduled product deliveries on HPC systems during the last 5 years

When systems were fielded prior to being “ready for prime time”, describe your response to quickly resolving each issue

Describe your company’s staffing profile with core competencies supporting HPC

Describe your recruiting, retention, and training program(s) for HPC technical staff

Describe your customer service support

ATTACHMENT 2

ACCEPTANCE TESTING

1. General.

As part of the acceptance process after installation of a system, the offeror will be required to complete two acceptance tests. The Effectiveness Level Test (ELT), as described in paragraph 2 below, will be the first test run by the Government or the Government's agent upon installation of a system. The Capability test (CT), as described in paragraph 4, shall begin after commencement of the ELT and finish prior to conclusion of the ELT. Acceptance of equipment by the Government is described in Sections 5 and 6 below.

The purpose of the ELT is to demonstrate that the system being purchased by the Government has been delivered in full and is reliable in accordance with the effectiveness level requirement; i.e. runs for thirty (30) consecutive days at or above the offeror's proposed level of reliability. The purpose of the CT is two-fold. First, to demonstrate that all components of a system can function as an inter-working system and second, to verify that the inter-working system can produce the benchmark execution times guaranteed in the proposal. In general ELT lasts thirty (30) days (unless an extension is required to achieve the required effectiveness level) and the CT can last up to 5 working days.

Consistent with the above-specified purposes for the ELT and CT, the Government desires to minimize, where appropriate and possible, the length of time between delivery of the proposed system and placing it into operational use within the MSRC. Accordingly, offerors are requested, where possible, to permit access to and use of the system by designated MSRC personnel prior to and during the ELT. It is recognized that such access and use needs to be explicitly approved by and coordinated with the offeror in advance of such access or use.

2. Effectiveness Level Testing.

For the purpose of the Effectiveness Level Test, equipment and system software shall be considered one system.

a. Starting ELT. The formal Effectiveness Level Test shall not begin until:

(1) The offeror has certified to the Government or the Government's agent that all offeror-proposed hardware and software have been fully installed, are fully functional, and that the system is ready for turnover to the Government's Integrator for completion of pre-ELT configuration.

(2) The offeror has notified the Government or the Government's agent in writing that the system is ready to begin ELT. The Government shall have a maximum of five (5) working days to approve start of the ELT.

(3) The offeror has successfully completed an HPC Linpack run using all proposed computational nodes.

b. Performance Period. The performance period for ELT shall begin at a time mutually agreed upon by the offeror and the Government after receipt of the offeror's written certification, completion of the HPC Linpack execution, and the Government's concurrence with the offeror's request to begin ELT. The performance period shall end for a system when the system and each piece of equipment contained therein, has met the Effectiveness Level and has experienced a number of Operational Interruptions less than or equal to the proposed maximum number of Operational Interrupts for the preceding thirty (30) consecutive days. If the system, or any piece of equipment contained therein, does not meet the Effectiveness Level or experiences a number of operational interrupts higher than proposed during the initial thirty (30) consecutive days, the performance period for that system may be extended on a day-by-day basis. However, if the required extension is more than ninety (90) consecutive days after commencement of ELT for the system configuration proposed (either the only ELT for a system, or the second ELT for a final system in a phased delivery, see paragraph 2f. of the General Information portion of this RFQ), the Government may unilaterally reject the system being tested. The offeror will be responsible for the cost of restoring the MSRCs facilities and computers to their pre-installation configuration.

c. Effectiveness Level Calculation. For the purpose of the Effectiveness Level Test, the effectiveness level (EL) shall be computed for each offeror-furnished system as follows:

$$EL = 100 * \frac{\text{Operational Use Time (hours)}}{\text{Scheduled Use Time (hours)}}$$

Only the integer portion of the above computed EL will be retained. Existing equipment will be subject to effectiveness level testing only when offeror-furnished additions or alterations are integral to the equipment and it can not be easily determined that the downtime is due to failure of the existing equipment. Otherwise, only the offeror furnished system shall be subject to effectiveness level testing.

The furnished system(s) and each piece of equipment therein shall operate for a period of thirty (30) consecutive days during the Performance Period of the ELT at a minimum Effectiveness Level of 95%, unless the offeror proposes to meet a higher Effective Level. A system will be considered down for an entire clock hour if it is down during any portion of that clock hour. In the Effectiveness Level computation, time shall be measured in 60 minute intervals, coinciding with the hours in the day.

d. Operational Interrupt. For the purposes of ELT, an Operational Interrupt is defined as the failure of one or more system components (including software) which **could** result in the failure of a running user job.

e. Operational Use Time. For the purposes of Effectiveness Level Testing, a system is considered Operationally Usable if it is capable of at least running the proposed number

of instantiations of the six application benchmark codes described on the HPCMP website (http://hpcmo.hpc.mil) when submitted using the installed queuing software by a remote interactive login which has no system level privileges. Operational Use Time are those hours during the preceding thirty (30) consecutive days when the offeror-furnished system is Operationally Usable during an entire clock hour. (The minimum time segment which may be considered operationally usable is four (4) hours.

f. Scheduled Use Time. For the purpose of the Effectiveness Level Test, Scheduled Use Time is 720 hours less Excusable Delays during the preceding thirty (30) consecutive days.

g. Down Time. For the purposes of the Effectiveness Level Test, Down Time are those hours during which the offeror-furnished system is not Operationally Usable for some part of the hour. The determination of down time will be made solely by the Government's Contracting Officer's Technical Representative (COTR) or designated representative. Down time for each failure shall start at the time the COTR or designated representative makes an entry in the System Maintenance Event log for the MSRC, and notifies the offeror in accordance with previously established and mutually agreed to procedures.

h. Excusable Delays. In addition to the Excusable Delays set forth in FAR Clause 52.212-4, the following periods of time are Excusable Delays:

(i) Periods during which the system is not performing due to planned outages which have been approved and scheduled in advance by the Government's COTR or other designated Government representative.

(ii) Periods during which the system is not performing due to Government-attributable causes, such as loss of Government-provided power.

3. Additional ELT Requirements.

a. Added System Elements. Systems or single hardware items which are to be added, substituted, or installed by the offeror, may at the option of the Government, be subject to a new thirty (30) day Performance Period which is independent of other system elements.

b. Daily Record: The Government or designated representative will maintain appropriate daily records of system and equipment effectiveness levels.

c. Access to and Use of System. Where possible, the offeror is requested to permit designated Government and contractor personnel access to and use of the system before and during the ELT period, in order to perform site-specific integration activities (examples would include security software installation, job scheduler configuration, and application software installation) and to exercise system functionality that will ultimately be available for use by the HPCMP users when the system is placed into operation.

d. System Utilization Requirement. The system must achieve a utilization of a minimum of the scheduled use CPU hours (720 hours * number of computational CPUs * 0.5). The CPU hours utilized will be determined from either SAR or system accounting records.

e. Delay of Start of Performance Period. Should it be necessary, the Government may delay the start of the performance period, but such delay will not exceed five (5) working days. Thus, the performance period shall start no later than the sixth (6th) working day after the system is installed and ready for the ELT in accordance with paragraph 2.a above.

4. Capability Testing.

a. Starting Capability Testing. The Capability Testing is conducted during the Effectiveness Level Tests. The offeror is responsible for submitting a Capability Test Plan to the Government. The Test Plan shall include the testing of the integrated system including the benchmark performance tests. It is required that the offeror notify the Government or its designated representative in writing at least five (5) working days in advance that the system is ready to begin the CT. A sample of the types of tests that are typically conducted as part of the CT Plan are as follows:

1. Network Capabilities:

(a) Demonstrate access to a computer system outside of the domain local to the MSRC but on DREN, kftp, and ktelnet from the system under test.

(b) Demonstrate access from a computer system outside of the domain local to the MSRC but on DREN, by using a Government-provided account to kftp and ktelnet to the system under test.

(c) Demonstrate access to other systems within the MSRC, by using kftp and ktelnet in a pair wise manner from and to the system under test and Government specified systems at the MSRC.

2. Installed System Capabilities:

(a) Demonstrate that the aggregate data transfer rate across all disk subsystems is at least XXX MByte/sec.

(b) Demonstrate that XX batch jobs can be simultaneously active at the same time interactive users are on the system.

(c) Demonstrate that the system can be brought to an orderly halt while preserving the file systems, batch job queues, and rerunnable open batch jobs

(d) Demonstrate in a pair wise manner that files can be exchanged among the system under test and Government specified systems at the MSRC without loss of information content.

(e) Demonstrate that the compilers (if any) supplied with the system supports all parallel programming models supported by the system.

(f) Demonstrate that a program with at least one module from each compiler and assembler provided with the system can be linked in such a way that all modules in the program successfully execute.

(g) Demonstrate that the compilers (if any) provided for that system supports a memory layout mechanism which work across multiple CPUs.

(h) Demonstrate that the compilers (if any) provided for that system supports a mechanism which partitions work across multiple CPUs. (This may be the same demonstration as the previous one).

(i) Demonstrate that at least five different subroutines in each subroutine library provided with the system can be called by each compiler provided with the system.

(j) Demonstrate that the system can be restarted after a crash. Demonstrate the extent to which file systems, batch job queues, and rerunnable open batch jobs are preserved in such a situation. (Complete preservation is not expected nor required.)

(k) Demonstrate for several utility or application programs (if any) provided with the system that each will execute with a simple test case or input data set.

(l) Demonstrate that each software development utility provided with the system will execute with a simple test case or input program.

b. Failure to Successfully Complete Capability Test. In the event that the installed system does not successfully complete the CT, within five (5) working days, the offeror and/or the Government or the Government's agent shall determine the reason for failure. After correcting the failure in order to achieve a satisfactory result, which may require adding, substituting, or installing requisite hardware, software and performing services at no extra charge to the Government, the Capability Test shall be repeated.

c. Execution of Guaranteed Benchmark Times. As part of the Capability Test described above, the Government and/or the Government's designated representatives will witness the offeror execute all benchmark programs whose execution times were guaranteed in the proposal for the installed system(s).

1. Benchmark Required Performance:

(a) All benchmark programs shall terminate normally, and produce output that satisfies the correctness criteria for that benchmark program. Execution times for the benchmark program and data set combinations applicable to the system under test must meet or be less than the times contained in the offeror's proposal.

(b) In the event the required normal termination(s) and correctness criteria satisfaction is (are) not obtained, or the benchmark programs fail to meet or beat the guaranteed execution times during the Capability Test, the system will have failed to successfully complete the CT, and the offeror shall proceed as described in paragraph 4.b above.

(c) Benchmark program/data set combinations applicable to demonstration of the guaranteed execution times for both the interim system and the final system in a phased delivery must be rerun on the final system completing a phased delivery. Both sets of benchmark program/data set combinations must demonstrate the guaranteed execution times as contained in the proposal. In the event that such execution times are not demonstrated, the system will have failed to successfully complete the CT, and the offeror shall proceed as described in paragraph 4.b above.

2. Files and Data Sets:

(a) The benchmark programs and data sets will be the same ones previously provided by the HPCMP in the initial RFQ.

5. Acceptance.

a. The offeror is responsible for the preparation and submission of DD Form 250, Material Inspection and Receiving Report. Formal acceptance of equipment by the Government's Contracting Officer or designated representative, upon successful completion of the Effectiveness Level Test and Government inspection, as specified in the preceding paragraphs, will be acknowledged on the face of the required Material Inspection and Receiving Report, DD Form 250. No payment shall be made on delivered hardware or software without formal acceptance being made by a duly authorized representative of the Government acknowledging such acceptance by their signature on the face of the above referenced Material Inspection and Receiving Report, DD Form 250.

b. Upon formal acceptance of equipment by the Government as defined above, the offeror shall be entitled to receive 75% of the price of the accepted equipment. The balance of that price shall be paid:

i.) Upon successful completion of integration into the MSRC by the Government and/or the Government's agent, permitting the system to be placed into operational use within the MSRC, or

ii.) 30 consecutive days after formal acceptance, whichever occurs first.

In a phased delivery, each phase of the system will be accepted separately.

6. Acceptance of Additional Equipment.

Any equipment or software added, substituted, or installed to fulfill the performance guarantees contained in the offeror's proposal shall be subject to the same acceptance criteria of this attachment.

ATTACHMENT 3

WARRANTY AND MAINTENANCE

1. Defective Parts Retention.

Once installed in a system at an MSRC, defective parts (e.g. magnetic media, semiconductor devices, etc.) that contain any data will be retained by the Government. The Government, at its option, may permit degaussing and/or declassification of such devices in accordance with approved, verifiable procedures for return to and re-use/disposal by the offeror. However, the Government reserves the right to retain these devices permanently or to destroy them, regardless of warranty or maintenance coverage for these devices. The Government shall incur no additional costs related to retention of such parts.

2. Warranty.

a. Any provided warranty shall commence on the next day after successful completion of the performance period phase-in testing (to be detailed in the final RFQ). Any maintenance (to include parts) performed prior to this date shall be furnished at no cost to the Government.

b. Prior to the expiration of the warranty period, whenever equipment is shipped for mechanical replacement purposes, the offeror shall bear all costs, including, but not limited to, costs of packing, transportation, rigging, drayage and insurance.

c. The warranty shall not apply to maintenance required due to the fault or negligence of the Government.

d. The effectiveness level of each system during the warranty period shall be computed separately, on a month by month basis, using the formula and definitions for effectiveness level (EL) in paragraph 2.c of Attachment 2.

e. The offeror shall maintain equipment provided in response to this proposal during the warranty period at a monthly effectiveness level of 95% (or higher if proposed by the offeror) and a minimum number of failures per month consistent with guarantees offered by the offeror. If the monthly effectiveness level for a system/equipment drops below) those levels, the offeror shall grant the Government a 100% consideration in the form of one month's maintenance charges. If the monthly effectiveness level for a system/equipment exceeds 98%, the Government shall provide 105% of negotiated monthly fees.

3. Hardware Maintenance.

On an as-required basis, the offeror shall provide remedial and preventive hardware maintenance for all equipment provided in response to the proposal, and for systems upgraded or expanded in response to the proposal.

a. Offeror maintenance personnel shall interact with designated Government and the Government's agent Points of Contact to facilitate equipment maintenance.

b. The offeror shall provide all labor, documentation, spare and repair parts, maintenance supplies, tools, diagnostics, and test equipment necessary to promptly and efficiently ensure that the equipment is restored to such a state that it is in nominal operating condition.

c. The offeror shall attempt to minimize the risk of loss of Government data while performing remedial and preventive hardware maintenance.

3.1 Remedial Maintenance.

Remedial maintenance shall be performed in accordance with the terms of the proposal. The Principal Period of Maintenance (PPM) shall be 24 hours per day, seven days a week, including holidays. Remedial maintenance shall be required when the Government's designated COTR, the Government's agent, or other authorized personnel, makes an entry in the System Maintenance Event Log for the MSRC recording that the system is not available for use, and notifies the offeror in accordance with previously established and mutually agreed to procedures.

"Not available for use" includes degradation in system performance resulting from conditions where more than 20% of the total system capacity is unavailable, or from conditions where full system functionality is not being provided. Examples of unavailable capacity would include, but not be limited to, inoperable processors, memory, on-line storage, network interfaces, or input/output paths/subsystems. System functionality includes all system capabilities and operating characteristics that are normally available for use by the HPCMP users.

When remedial hardware maintenance is required, the response time shall be within two hours. Response time begins at the time of an entry in the System Maintenance Event Log and proceeds until corrective actions are initiated by the offeror. Copies of the System Maintenance Event Log shall be provided to the Government's COTR upon request, and may be used by the Government to establish the times used in computing the monthly effectiveness level.

a. The effectiveness level of each system shall be computed separately, on a month by month basis, using the formula and definitions for effectiveness level (EL) of paragraph 2.c of Attachment 2.

b. The offeror shall maintain equipment provided in response to this proposal during the warranty period at a monthly effectiveness level of 95% (or higher if proposed by the offeror) and a minimum number of failures per month consistent with guarantees offered by the offeror. If the monthly effectiveness level for a system/equipment drops below) those levels, the offeror shall grant the Government a 100% consideration in the form of one month's maintenance charges. If the monthly effectiveness level for a system/equipment exceeds 98%, the Government shall provide 105% of negotiated monthly fees.

3.2 Preventive Maintenance.

a. In the event that Preventive Maintenance (PM) is required for equipment provided by the offeror, it shall be performed as and with the frequency recommended by the manufacturer. The offeror shall work with Government COTR or designated representative to establish a mutually agreeable schedule for PM. The offeror shall make a copy of the recommended PM schedule available to the COTR or designated representative upon request.

b. The Government requires that all manufacturer-sponsored Engineering Changes (ECs) issued prior to acceptance be incorporated into any equipment provided by the offeror. After the date of acceptance, all future ECs and changes shall be offered to the Government by the offeror within 60 days of release by the manufacturer for production use. Those ECs and changes required to correct safety hazards shall be offered to the Government within one day's notification to the offeror by the manufacturer that such an EC or change is available for production use. It is understood that a rejected EC may have to be accepted at a later date if it is required as a prerequisite to a future accepted EC. The offeror shall notify the Government of all ECs prior to commencing installation of the ECs. All manufacturer-sponsored ECs, except changes required to correct safety hazards, shall be subject to approval by the Government's COTR or designated representative prior to commencing the equipment modification. Notification shall include a description of the EC or change, the equipment it applies to, and a recommendation as to whether or not it should be installed. ECs and changes required to correct safety hazards shall be obtained from the manufacturer and installed in a timely manner by the offeror during periods of preventive maintenance.

4. Software Maintenance.

The offeror shall provide software maintenance, either on-site, via remote diagnostics service in accordance with previously established and mutually agreed to procedures, or a combination of both, for all software provided by the offeror. Remote-diagnostics service cannot be used for software installed on equipment used to process classified data.

a. The offeror shall perform the initial software installation and configuration of all offeror provided software.

b. The offeror shall maintain compliance with all hardware and other software specifications with any new software releases installed.

c. The offeror shall obtain from the manufacturer or developer all new releases of off-the-shelf software originally provided by the offeror, including subroutine libraries, together with installation instructions and associated documentation. These releases shall be offered to the Government by the offeror within 60 days of availability of such releases for production use. The offeror shall install the new release, dependent on the prior installation of any requisite hardware and subject to approval by the Government's COTR or designated representative prior to installation. The term "releases" shall be considered to include corrections (AKA "bug fixes"), revisions, updates, extensions, improvements, new versions, and new library language bindings for any compilers

originally provided by the offeror. New releases shall contain all previous fixes. New releases shall be tested prior to release for general use, to ensure successful implementation when released. Such testing shall be coordinated with the Government's integrating contractor and performed at such times as to provide minimal user impact.

d. The offeror shall notify the Government's COTR or designated representative of all security alerts released by the Computer Emergency Response Team (CERT) that apply to operating systems and associated software and utilities provided or maintained by the offeror, within one day of their release. Any resulting change to operating systems and associated software and utilities provided or maintained by the offeror shall be submitted to the Government's COTR or designated representative for approval, with installation instructions and associated documentation. Changes shall be installed within one day of such approval, dependent on the prior installation of any requisite hardware. The offeror shall expedite any testing performed prior to release for general use of such a change.

e. The offeror shall attempt to minimize the risk of loss of Government data while performing software maintenance.

ATTACHMENT 4

VENDOR PRESENTATIONS AND USABILITY INFORMATION

1. Offeror Presentations/Information

1.1 Dates and Times.

Offeror presentations to the High Performance Computing Modernization Program (HPCMP) as part of the FY 2003 technology acquisition will be held 3–6 September 2002, at the HPCMP offices in Arlington, VA.

We anticipate that presentations will begin at 9 am, 1 pm, and 3:30 pm on Wednesday and Thursday. Presentations will begin at 1 pm on Tuesday; no afternoon presentations are scheduled on Friday.

1.2 Scheduling.

Offerors may request a specific time slot, or be assigned one. Time slots will be assigned on a first come, first served basis, with priority given to the first requestor in the event of a tie. Offerors are encouraged to specify at least one alternate time slot. Requests should be directed to the HPCMP through GSA. Presentations should be scheduled no later than 5:00 pm eastern daylight time 22 August 2002.

1.3 Presentation Format.

Presentations are to be 2 hours each. Each offeror is limited to 1 presentation, and each offeror's presentation team may have no more than four representatives in the conference room at one time, although teams may make an unlimited number of participant substitutions during their presentation.

1.4 Content.

In addition to specific data requests in the RFQ, offerors are referred to attachments to this memorandum for information to cover during their presentation.

1.5 Hard Copies.

Offerors must provide 5 hard copies of their entire presentation. These copies may be furnished at the briefing.

1.6 Questions.

All questions concerning the presentations are to be directed to the HPCMP through John Mayes, GSA. All questions should be presented on an MS Word document to John Mayes via email at john.mayes@gsa.gov

2. Usability Information.

The usability team requests that offerors address the following in the course of their presentations. The information is grouped by topic area in no particular order.

2.1 Secondary Storage and Data Management.

Address the availability and features of a global parallel file system, file/filesystem scalability, SAN capabilities (including interoperability with multi-vendor SAN switch fabric and storage devices), and staging and storage models for user task data.

2.2 Job Management.

Discuss the job scheduling user and administrative interfaces, process control mechanisms, resource and utilization accounting mechanisms, granularity of job scheduling and constraints on job placement with respect to processors utilized, differentiating features supported, and the features of any checkpoint/restart capabilities (specific information on checkpoint/restart for scheduled vs. unscheduled interruptions and for interactive vs. batch jobs).

2.3 Operating Environment.

Address the tools or techniques available to users and administration staff to monitor system performance and anticipate node or component failures to mitigate loss of data from running jobs, differentiating operating system features and functionality, and commercial off-the-shelf software (COTS) availability.

2.4 Development Environment

Address the availability and features of compilers, scientific libraries, debugging and development tools, and the programming models supported on the platforms discussed.

2.5 Networking

Address current network interface availability and future plans and performance, and characterize the system management traffic (if any).

2.6 Security

Discuss the general security posture of the offerings and provide specific information on support for access control lists, IPSEC, Kerberos, use of SSH 2, and multi-level security.

2.7 System Maintenance.

Discuss the availability of supported third party component hardware offerors and diversity of products provided, as well as the degree to which system performance is dependent upon specific system components (HW/SW) in specific configurations. Also address system degradation modes, maintenance granularity, the extent of dynamic reconfiguration options, the high level process for system and application software upgrades, mechanisms for performance monitoring and tuning, and the number of SW copies or environments maintained on the system.

2.8 Support Model.

Address the requirement for and availability of onsite personnel, mechanisms for auto diagnosis and reporting of errors, how extended support for user and service issues is provided and what expertise is available, and the degree to which support processes and tools allow for support and maintenance of the target platforms as a single service image.

2.9 Facilities Requirements.

Discuss the power, space, cooling, and load characteristics of the offering along with additional environmental requirements.

ATTACHMENT 5

1. CPU/Memory Questions

1.1 Main Memory

1. Maximum main memory performance for a single CPU
2. Total main memory performance to all CPUs
3. Is bandwidth and latency consistent across all CPUs all of memory (If not please explain difference and techniques to minimize latency. E.g. Memory placement issues)
4. List supported Memory Size(s)
5. Total Memory Banks/Sections

1.2 Cache Memory

1. Bandwidth to cache memory from a single CPU and multiple CPUs if they share the same cache
2. Startup latency for cache
3. Cache coherency bandwidth
4. Size of the cache line
5. Cache to main memory bandwidth per cache and for all caches

1.3 CPU

1. CPU clock rate
2. CPU instruction issue rate
3. Number of floating point units
4. Number of integer units
5. Size and type of the internal caches
6. Maximum SMP CPUs

2. OS Questions

Size of the system page for standard user applications

Does TCP/IP stack use DMA transfers (e.g. Zero Copy TCP)

What is the Maximum number of CPU supported by the OS

What is the maximum LUN size supported

What is the maximum memory size for a single application supported

What is the largest I/O request supported

Is direct I/O supported if so provide an explanation of how to use direct I/O

3. File System/Volume Manager Questions (if multiple file systems and/or Volume managers are proposed these questions must be answered for each file system)

6. Does proposed file system and/or volume manager separate data and meta data
7. Does the proposed file system support round-robin file allocation instead of striping all files across all devices
8. What is the largest file system supported and largest file system tested
9. Does the file system support preallocation if so how
10. What is the largest file system block size, or allocation unit, supported
11. Largest single file supported

4. Bus Questions

12. Is the proposed bus PCI or PCI-X state speed and width
13. Does the bus run full duplex at the specified rates (please provide test data showing full duplex rates)

5. HBA Questions

14. Ports per HBA
15. Rated speed of the HBA
16. Size of the HBA command queue
17. Full duplex performance of the HBA (provide actual test data and explain)

6. Switch Questions (if switches are proposed)

18. Future performance
19. Internal design
    a. Port density per board
    b. Bus configuration
    c. Backplane configuration
20. How many ISL connections supported
21. Is translative mode supported for loop devices
22. Buffer credits dynamically allocated to a port
23. Buffer credits statically allocated to a port
24. HBA supported
25. Tapes Supported
26. RAIDs supported
27. Security for ports

28. Security for zones (e.g. can a zone be controlled and managed by a group)
29. Maximum distance supported for Switch to switch, switch to device
30. Board to board latency interboard latency total backplane bandwidth

7. RAID Vendor Questions

7.1 Controller Architecture

1. Chipset
2. Internal Bus type and design PCI or PCI-X
3. Cache hardware information and size
4. Bandwidth for write cache mirror
5. Bandwidth to Disk
6. Processor type and speed
7. Explain how dual active/passive support work for controllers, power, and cache
8. LUN count supported by controller
9. Number of hosts that can be connected per controller
10. Loop count controller to disk
11. Load balancing controller to disk
12. Disk types supported
13. RAID configuration (e.g. RAID 1,5, 0+1 etc)
14. Multi-LUN support
15. LUN Size. Please discuss number of TB per LUN supported per OS (Solaris, Win2K, Tru64, HP-UX, AIX)
16. Chain the devices (how many on a loop/bus?)
17. How do backend loops support the LUNs load balancing?
18. How do backend loops address availability of data
19. Remote Copy support
20. MTBF/MTTR For all supported RAID levels
21. What components can be upgraded hot (both hardware and software)
22. Alignment/block size values supported
23. Cache allocations supported
24. System settings (provide tunable information)
25. For both RAID 1 & 5 (and any other's that support redundancy). We want to know how write reconstruct works both when there are hot spares and when there are not.
26. HBAs supported and tested
27. Switches supported and tested

28. Can blocksize/alignment be change without taking system off-line. If so explain limitations
29. Command queue size
30. Maximum OPS to disk (please provide hardware and software configuration and benchmark test environment including OS, software used, HBAs and firmware releases)
31. Maximum OPS to cache (please provide hardware and software configuration and benchmark test environment including OS, software used, HBAs and firmware releases)
32. Maximum streaming to disk (please provide hardware and software configuration and benchmark test environment including OS, software used, HBAs and firmware releases)
33. Provide information 30-32 with and without write cache mirror if supported
34. Cache tunables (please provide all information)
35. Caching algorithm (e.g. separate read/write cache, high water marks etc)

8. LAN support

1. List all network interconnects supported
2. Compatibility information for each interface
3. List MTU sizes for each interface
4. Provide full duplex performance and CPU overhead for each interface

ATTACHMENT 6

ADDITIONAL TERMS AND CONDITIONS

8.1 Current Technology Substitutions/Additions.

The Contractor, upon commercial announcement of new components that can be technically and economically substituted for, or added to, items identified in the Contractor's proposal, shall offer said items for addition or substitution. These item(s) may be accepted at the option of the Government, provided at least equivalent performance with economic benefits or significantly enhanced performance is achieved.

WARRANTY PROVISION.

a. Any provided warranty shall commence upon the first day of the successful performance period (i.e., the 30-consecutive-day period prior to completion of the Effectiveness Level Test, as set forth in Attachment 2) Any maintenance (to include parts) performed prior to this period shall be furnished at no cost to the Government.

b. Defective parts which contain classified data and which are replaced during the warranty period shall remain the property of the Government. The Government shall incur no additional costs related to retention of such parts. All other defective parts which are replaced during the warranty period shall become the property of the Contractor.

c. Prior to the expiration of the warranty period, whenever equipment is shipped for mechanical replacement purposes, the Contractor shall bear all costs, including, but not limited to, costs of packing, transportation, rigging, drayage and insurance.

d. The warranty shall not apply to maintenance required due to the fault or negligence of the Government.

8.2 Risk of Loss Or Damage.

a. The Government is relieved from all risks of loss or damage to purchased equipment during periods of transportation, installation, and prior to completion of the Effectiveness Level Test, except when loss or damage is due to the negligence of the Government.

b. In the event security or other regulations require the retention or destruction of devices (e.g., magnetic core, magnetic tape, etc.) the Government, at its option, shall pay to the Contractor all costs necessary to replace the storage device or restore it to good operating condition.

8.3 Maintenance Credits.

Downtime will be accumulated for the month and rounded off to the next higher hour. Maintenance credits will be taken as a discount from the monthly amount due the Contractor. Monthly equipment availability and associated maintenance credits are as follows:

Equipment Availability Rate	**Maintenance Credit**
95% -100%	0
0% - 94%	100%

.

8.4 Section 508 Compliance.

All information technology products acquired or developed by a federal agency after June 25, 2001, must be compatible with accessories that permit people with disabilities to use that equipment. While agencies do not have to install assistive devices and technology in their offices until an employee with disabilities needs it, any electronic and information technology (EIT) equipment purchased after June 25, 2001, must meet specific standards so assistive devices can be attached if needed. Therefore, all EIT equipment delivered under this order, must meet the applicable accessibility standards at 36 CFR 1194. 36 CFR 1194 implements Section 508 of the Rehabilitation Act of 1973, as amended, and is viewable at http://www.section508.gov/accessible.html (FAR Part 39.2)

8.5 Additional Clauses – Incorporated by Reference

All FAR Clauses from the GSA Schedule are incorporated into this RFQ. The following additional FAR and DFAR Clauses are incorporated by reference:

FAR:

52.227-14	Rights in Data – General, Alternates I, II, III, IV and V	(JUNE 1987)

DFAR:

252.227-7015	Technical Data – Commercial Items	(NOV 1995)
252.227-7019	Validation of Asserted Restrictions – Computer Software	(JUNE 1995)
252.227-7025	Limitations On The Use Or Disclosure Of Government-Furnished Information Marked With Restrictive Legends	(JUNE 1995)
252.227-7030	Technical Data – Withholding of Payment	(MAR 2000)

252.227-7034 Patents – Subcontracts (APR 1984)

252.227-7037 Validation Of Restrictive Markings On Technical Data (SEPT 1999)